and Cases, William G. Shephard, ed. Irwin 1975. Revised version in Handbook of Social Science of Sport, Gunther R. R. Luschen and George H. Sage, eds. Stripes Publishing Co., 1980.

"The Social Costs of Government Intervention." In The Business-Government Relationship in American Society: Reassessment, Neil H. Jacoby, editor. University of California Press, 1975.

"The Consequence of Public Utility Regulation of Hospitals." In Controls on Health Care. Washington, D.C.: National Academy of Sciences, 1975.

"Information, Decision-Making Procedures and Energy Policy." American Behavioral Scientists, Vol. 19, No. 3 (January/February 1976): 267-278. Reprinted in Current Issues in Social Policy, W. B. Littrell and G. Sjoberg, eds. Sage, 1976.

"Breaking Out of the Regulatory Dilemma: Alternatives to the Sterile Choice." Indiana Law Journal, Vol. 51, No. 3 (Spring 1976): 686-699. Reprinted in Corporate Practice Commentator, Vol. 19, No. 1 (Spring 1977): 99-114.

"Safety Regulation," co-authors Nina Cornell and Barry Weingast. In Setting National Priorities: The Next Ten Years, Henry Owen and Charles L. Schultze, eds. Brookings Institution, 1976.

"Major League Team Sports." In The Structure of American Industry, Walter Adams, ed. 5th ed. Macmillan, 1977. 6th ed. Macmillan, 1981.

"An Experimental Market for Public Goods: The PBS Program Cooperative," co-author John A. Ferejohn. American Economic Review Papers and Proceedings, Vol. 66, No. 2 (May 1976): 267-273.

"Government Policy and Technological Innovation: Where Do We Stand and Where Do We Go?" In Innovation, Economic Change and Technology Policies, K.A. Stroetmann, ed. Birkauser-Verlag, 1977. Also in Government Policies and Technological Innovation, Vol. I. National Technical Information Service, 1974.

"Economic Policy Research on Cable Television: Assessing the Costs and Benefits of Cable Deregulation," co-authors S.M. Besen, B.M. Mitchell, B.M. Owen, R.E. Park, and J.N. Rosse. In Deregulation of Cable Television, Paul W. MacAvoy, ed. American Enterprise Institute, 1977.

"The Economic Implications of Regulation by Expertise: The Case of Recombinant DNA Research," co-author Paul A. Thomas. In Research with Recombinant DNA. National Academy of Sciences, 1977.

"The Dilemma of Consumer Advocacy." In Regulatory Reform, W.S. Moore, ed. American Enterprise Institute, 1978.

"Uncertainty and the Formal Theory of Political Campaigns," co-author John A. Ferejohn. American Political Science Review, Vol. 72, No. 2 (June 1978): 492-505.

"Voters, Bureaucrats and Legislators: A Rational Choice Perspective on the Growth of Bureaucracy," co-author Morris P. Fiorina. Journal of Public Economics, Vol. 9, No. 3 (May

1978): 239-254.

"Public Utilities and Solar Energy Development--Institutional Economic Considerations." In On the Economics of Solar Energy, Stephen L. Feldman and Robert M. Wirtshafter, eds. D.C. Heath, Lexington books, 1980. Extended version in The Solar Market: Proceedings of the Symposium on Competition in the Solar Industry. Federal Trade Commission, 1978.

"The Rationale for Mandated Cost Increases." In Economic Effects of Government-Mandated Costs, Robert F. Lanzillotti, ed. University Presses of Florida, 1978.

"An Experimental Analysis of Decisionmaking Procedures for Discrete Public Goods: A Case Study of a Problem in Institutional Design," co-authors John A. Ferejohn and Robert E. Forsythe. In Research in Experimental Economics, Vol. I, Vernon L. Smith, ed. JAI Press, 1979.

"Voters, Legislators and Bureaucracy: Institutional Design in the Public Sector," co-author Morris P. Fiorina. American Economic Review Papers and Proceedings, Vol. 68, No. 2 (May 1978): 256-260. Translated into Italian in Problemi Di Amministrazione Pubblica, Vol. 4, No. 2 (1979): 69-89.

"Regulation and Computer Services." In The Computer Age, Michael L. Dertouzos and Joel Moses, eds. MIT Press, 1979, pp. 254-284.

"Practical Aspects of the Construction of Decentralized Decisionmaking Systems for Public Goods," co-authors John A. Ferejohn and Robert Forsythe. In Collective Decisionmaking, Clifford S. Russell, ed. Resources for the Future, 1979.

"Majority Rule Models and Legislative Elections," co-author Morris P. Fiorina. Journal of Politics, Vol. 41, No. 4 (November 1979): 1081-1104.

"Regulatory and Nonregulatory Strategies for Controlling Health Care Costs," co-author Alain Enthoven. In Medical Technology: The Culprit Behind Health Care Costs, Stuart H. Altman and Robert Blendon, eds. Sun Valley Forum on National Health. U.S. Department of Health, Education and Welfare Publication No. (PHS) 79-3216, 1979.

"The Game of Health Care Regulation: Comments on Feldman/Roberts." In Issues in Health Care Regulation, Richard S. Gordon, ed. McGraw-Hill Book Co., 1980.

"Discussion: Regulatory Institutions in Historical Perspective." American Economic Review Vol. 70, No. 2 (May 1980): 316-317.

"The Economics of Disaster Defense: The Case of Building Codes to Resist Seismic Shock," co-author Linda Cohen. Public Policy, Vol. 29, No. 1 (Winter 1981): 1-29.

"Regulation in Theory and Practice: An Overview," co-author Paul L. Joskow. In Studies in Public Regulation, Gary Fromm, ed. MIT Press, 1981.

"Designing a Market for Tradable Emissions Permits," co-author Robert W. Hahn. In Reform of Environmental Regulation, Wesley Magat, ed. Lexington Books, 1982.

"Implementing Marketable Emissions Permits." American Economic Review Papers and

Proceedings, Vol. 72, No. 2 (May 1982): 120-124.

"Implementing Tradable Emissions Permits," co-author Robert W. Hahn. In Reforming Social Regulation, Leroy Graymer and Frederick Thompson, eds. Sage Publications, 1982.

"An Experimental Examination of Auction Mechanisms for Discrete Public Goods," co-authors John A. Ferejohn, Robert Forsythe and Thomas R. Palfrey. In Research in Experimental Economics, Vol. II, Vernon L. Smith, ed. JAI Press, 1982. Reprinted in Experimental Foundations of Political Science, Donald R. Kinder and Thomas R. Palfrey, eds. University of Michigan Press, 1993.

"The Feasibility of Marketable Emissions Permits in the U.S." In Public Sector Economics, Jorg Finsinger, ed. Macmillan Press, Ltd., 1983.

"Barriers to Implementing Tradable Air Pollution Permits: Problems of Regulatory Interactions," co-author Robert W. Hahn. Yale Journal of Regulation, Vol. 1, No. 1 (1983): 63-91.

"The Future of Telecommunication Regulation." In Telecommunications Today and Tomorrow, Eli Noam, ed. Harcourt Brace Jovanovich, 1983.

"The Case Against the Balanced Budget Amendment: Comments on Aranson and Rabushka." In The Economic Consequences of Government Deficits, Laurence H. Meyer, ed. Kluwer-Nyhoff Publishing, 1983.

"The Political Foundations of Regulatory Policy." Zeitschrift fur die gesamte Staatswissenschaft (Journal of Institutional and Theoretical Economics), Vol. 139, No. 3 (1983): 377-404. Reprinted in Congress: Structure and Policy, Mathew McCubbins and Terry Sullivan, eds. Cambridge University Press, 1987.

"The Regulation of Surface Freight Transportation: The Welfare Effects Revisited," co-author Ronald R. Braeutigam. The Review of Economics and Statistics, Vol. 66, No. 1 (1984): 80-87.

"Prospective Payment: Will It Solve Medicare's Financial Problem," co-author Alain C. Enthoven. Issues in Science and Technology, Vol. 1, No. 1 (1984): 111-116. Reprinted in Health Industry Today, Vol. 48, No. 3 (1985): 16-24.

"'Let Them Make Toll Calls': A State Regulator's Lament." American Economic Review Papers and Proceedings, Vol. 75, No. 2 (1985): 52-56.

"The Preferences of Policy Makers for Alternative Allocations of the Broadcast Spectrum," co-author Forrest Nelson. In Antitrust and Regulation: Essays in Memory of John J. McGowan, Franklin M. Fisher, ed. MIT Press, 1985.

"Government Regulatory Behavior: A Multidisciplinary Survey and Synthesis." In Regulatory Policy and the Social Sciences, Roger G. Noll, ed. University of California Press, 1985.

"State Regulatory Responses to Competition and Divestiture in the Telecommunications Industry." In Antitrust and Regulation, Ronald E. Grieson, ed. Lexington Books, 1986.

"The Political and Institutional Context of Communications Policy." In Marketplace for Telecommunications, Marcellus S. Snow, ed. Longman, Inc., 1986.

"Government R&D Programs for Commercializing Space," co-author Linda R. Cohen. American Economic Review Papers and Proceedings, Vol. 76, No. 2 (1986): 269-73.

"Funding and Knowledge Growth: Comments." Social Studies of Science, Vol. 16, No. 1 (1986): 135-42.

"Communications." In The New Palgrave, John Eatwell, Murray Milgat, and Peter Newman, eds. MacMillan, 1987.

"Administrative Procedures as Instruments of Political Control," co-authors Mathew D. McCubbins and Barry R. Weingast. Journal of Law, Economics and Organization, Vol. 3, No. 2 (1987). Abridged version in State and Federal Administrative Law, Arthur Earl Bonfield and Michael Asimow, eds. West Publishing, 1989.

"Comment: Settlement Incentives and Follow-on Litigation." In Private Antitrust Litigation, Lawrence J. White, ed. MIT Press, 1988.

"Economics, Politics and Government Research and Development," co-author Linda Cohen. In Technology and Politics, Michael E. Kraft and Norman J. Vig, eds. Duke University Press, 1988.

"The Anticompetitive Uses of Regulation: United States v. AT&T (1982)," co-author Bruce M. Owen. In The Antitrust Revolution, John E. Kwoka, Jr., and Lawrence J. White, eds. Scott, Foresman, 1988.

"The Political Economy of NASA's Applications Technology Satellite Program," co-author Linda R. Cohen. In Space Applications Board, Proceedings of a Symposium on Space Communications Research and Development. National Research Council, 1988.

"The Economics of Sports Leagues." In Law of Professional and Amateur Sports, Gary A. Uberstine, ed. Clark Boardman, 1988.

"Preface: Symposium on Telecommunications Demand." Information Economics and Policy, Vol. 3 No. 4 (1988): 275.

"Structure and Process, Politics and Policy: Administrative Arrangements and the Political Control of Agencies," co-authors Mathew D. McCubbins and Barry R. Weingast. Virginia Law Review Vol. 75, No. 2 (March 1989): 431-482.

"U.S. v. AT & T: An Interim Assessment," co-author Bruce M. Owen. In Future Competition in Telecommunications, Stephen P. Bradley and Jerry A. Hausman, eds. Harvard Business School Press, 1989.

"Telecommunications Regulation in the 1990s." In New Directions in Telecommunications Policy, Vol. I, Paula R. Newberg, ed. Duke University Press, 1989.

"Comment: Peltzman on Deregulation." Brookings Papers on Economic Activity: Microeconomics (1989): 48-58.

"Economic Perspectives on the Politics of Regulation." In Handbook of Industrial Organization, Vol. II. Richard Schmalensee and Robert Willig, eds. North Holland Publishing Co., 1989.

"Some Implications of Cognitive Psychology for Risk Regulation," co-author James Krier. Journal of Legal Studies, Vol. 19 (June 1990): 747-779. Excerpts reprinted in Foundations of the Economic Approach to Law, Avery Weiner Katz, ed. Oxford University Press, 1998.

"Environmental Markets in the Year 2000," co-author Robert Hahn. Journal of Risk and Uncertainty, Vol. 3 (December, 1990): 347-363.

"Pricing of Telephone Services," co-author Susan Smart. In After the Breakup, Barry G. Cole, ed. Columbia University Press, 1990.

"Positive and Normative Models of Procedural Rights: An Integrative Approach to Administrative Procedures," co-authors Mathew D. McCubbins and Barry R. Weingast. Journal of Law, Economics and Organization, Vol. 6 (1990): 307-332.

"Commentary: The Prospects for Using Market Incentives for Conservation of Biological Diversity." In The Preservation and Valuation of Biological Resources, Gordon H. Orians, Gardner M. Brown, Jr., William E. Kunin, and Joseph E. Swierzbinski, eds. University of Washington Press, 1990.

"Slack, Public Interest, and Structure-Induced Policy," co-authors Mathew D. McCubbins and Barry R. Weingast. Journal of Law, Economics and Organization, Vol. 6 (1990): 203-212.

"How to Vote, Whether to Vote: Strategies for Voting and Abstaining on Congressional Roll Calls," co-author Linda R. Cohen. Political Behavior, Vol. 13 No. 2 (1991): 97-127.

"Rational Actor Theory, Social Norms, and Policy Implementation: Applications to Administrative Processes and Bureaucratic Culture," co-author Barry R. Weingast. In The Economic Approach to Politics, Kristen Renwick Monroe, ed. Harper Collins, 1991.

"The National Aerospace Plane: An American Technological Long Shot, Japanese Style," co-authors Linda R. Cohen and Susan A. Edelman. American Economic Review Papers and Proceedings, Vol. 81 (May 1991): 50-53.

"The Economics of Intercollegiate Sports." In Rethinking College Athletics, Judith Andre and David N. James, eds. Temple University Press, 1991.

"Comparative Structural Policies," co-author Haruo Shimada. In Parallel Politics, Samuel Kernell, ed. Brookings Institution, 1991.

"Structural Policies in the United States." In Parallel Politics, Samuel Kernell, ed. Brookings Institution, 1991.

"On Regulating Prices for Physicians." In Regulating Doctors' Fees, H.E. Frech III, ed. AEI Press, 1991.

"ISDN and the Small User: Regulatory Policy Issues," co-author William Lehr. In Integrated

Broadband Networks, Martin C.J. Elton, ed. North-Holland, 1991.

"Professional Basketball: Economic and Business Perspectives." In The Business of Professional Sports, Paul D. Staudohar and James A. Mangan, eds. University of Illinois Press, 1991.

"Computer Reservation Systems and Their Network Linkages to the Airline Industry," co-author Margaret E. Guerin-Calvert. In Electronic Services Networks, Margaret E. Guerin-Calvert and Steven S. Wildman, eds. Praeger, 1991.

"Positive Canons: The Role of Legislative Bargains in Statutory Interpretation," co-authors Mathew McCubbins and Barry Weingast. Georgetown Law Journal, Vol. 80 (February 1992): 705-742. Reprinted in Sutherland Statutory Construction, Norton J. Singer, ed. Clark Boardman Callaghan, 1993.

"An Economic Analysis of Scientific Journal Prices: Preliminary Results," co-author W. Edward Steinmueller. Serials Review 18 (1992): 32-37.

"The Theory of Interpretive Canon and Legislative Behavior," co-authors Mathew McCubbins and Barry Weingast. International Review of Law and Economics, Vol. 12 (1992): 235-238.

"Comment: Judicial Review and the Power of the Purse." International Review of Law and Economics, Vol. 12 (June 1992): 211-213.

"Comment: Standard Setting in High-Definition Television." Brookings Papers on Economic Activity: Microeconomics, 1992: 80-89.

"Research and Development," co-author Linda R. Cohen. In Setting Domestic Priorities: What Can Government Do? Henry J. Aaron and Charles L. Schultze, eds. Brookings Institution, 1992.

"The Economics of Information: A User's Guide." In The Knowledge Economy: Annual Review of the Institute for Information Studies. Aspen Institute, 1993.

"Downsian Thresholds and the Theory of Political Advertising." In Information, Participation, and Choice, Bernard Grofman, ed. University of Michigan Press, 1993.

"Economic Regulation," co-author Paul L. Joskow. In American Economic Policy in the 1980s, Martin Feldstein, ed. University of Chicago Press, 1994.

"Legislative Intent: The Use of Positive Political Theory in Statutory Interpretation," co-authors Mathew McCubbins and Barry Weingast. Law and Contemporary Problems, Vol. 57 (Winter/Spring 1994): 3-37.

"The Origins of State Railroad Regulation: The Illinois State Constitution of 1870," co-author Mark T. Kanazawa. In The Regulated Economy, Claudia Goldin and Gary D. Libecap, eds. University of Chicago Press, 1994.

"Japanese and American Telecommunications Policy," co-author Frances M. Rosenbluth. Communications and Strategy 15 (3eme trimestre 1994): 13-46.

"Public Policy and the Admission of the Western States," co-author David W. Brady. In The Political Economy of the American West, Terry L. Anderson and Peter J. Hill, eds. Rowman and Littlefield, 1994.

"Introduction: Regulation and the New Telecommunications Infrastructure." The Changing Nature of Telecommunications/Information Infrastructure. National Academy Press, 1995.

"Feasibility of Effective Public-Private R&D Collaboration: The Case of Cooperative R&D Agreements," co-author Linda R. Cohen. International Journal of the Economics of Business 2 (1995): 223-240.

"Telecommunications Policy: Structure, Process, Outcomes," co-author Frances M. Rosenbluth. In Structure and Policy in Japan and the United States, Mathew D. McCubbins and Peter Cowhey, eds. Cambridge University Press, 1995

"Principles of State Constitutional Design," co-author Bruce E. Cain. In Constitutional Reform in California, Bruce E. Cain and Roger G. Noll, eds. University of California Institute for Governmental Studies, 1995. Excerpt reprinted in Madison Review 3 (Fall 1997): 7-11.

"Executive Organization: Responsiveness vs. Expertise and Flexibility." In Constitutional Reform in California, Bruce E. Cain and Roger G. Noll, eds. University of California Institute for Governmental Studies, 1995.

"The Role of Antitrust in Telecommunications." Antitrust Bulletin (Fall 1995): 501-528.

"Politics and the Courts: A Positive Theory of Judicial Doctrine and the Rule of Law," co-authors Mathew D. McCubbins and Barry R. Weingast. Southern California Law Review Vol. 68 (September 1995): 1631-83.

"Privatizing Public Research: The New Competitiveness Strategy," co-author Linda R. Cohen. In The Mosaic of Economic Growth, Ralph Landau, Timothy Taylor, and Gavin Wright, eds. Stanford University Press, 1996.

"Comment: Preferences, Promises, and the Politics of Entitlement." In Individual and Social Responsibility, Victor R, Fuchs, ed. University of Chicago Press, 1996.

"Reforming Risk Regulation." The Annals of the AAPSS Vol 545 (May 1996): 165-75.

"The Complex Politics of Catastrophe Economics." Journal of Risk and Uncertainty, Vol. 12 (May 1996): 141-46.

"The Economics of Scholarly Publications and the Information Superhighway." In The Internet and Telecommunications Policy, Gerald W. Brock and Gregory L. Rosston, eds. Lawrence Erlbaum, 1996.

"Regulatory Reform as International Policy." In Regulatory Reform and International Market Openness. Organisation for Economic Cooperation and Development, 1996.

"The Future of the National Laboratories," co-author Linda R. Cohen. Proceedings of the National Academy of Sciences, Vol. 93 (November 1996): 12678-85.

"Research and Development after the Cold War," co-author Linda R. Cohen. In Commercializing High Technology: East and West, Judith B. Sedaitis, ed. Roman and Littlefield, 1997.

"Internationalizing Regulatory Reform." In Comparative Disadvantage? Social Regulations and the Global Economy, Pietro S. Nivola, ed. Brookings Institution, 1997.

"The International Dimension of Regulatory Reform: With Applications to Egypt." *Distinguished Lecture Series 8*. Egyptian Center for Economic Studies, 1997.

"Build the Stadium–Create the Jobs!" co-author Andrew Zimbalist. In Sports, Jobs and Taxes, Roger G. Noll and Andrew Zimbalist, eds. Brookings Institution, 1997.

"The Economic Impact of Sports Teams and Facilities," co-author Andrew Zimbalist. In Sports, Jobs and Taxes, Roger G. Noll and Andrew Zimbalist, eds. Brookings Institution, 1997.

"Sports, Jobs and Taxes: The Real Connection," co-author Andrew Zimbalist. In Sports, Jobs and Taxes, Roger G. Noll and Andrew Zimbalist, eds. Brookings Institution, 1997.

"The American Research University: An Introduction." In Challenges to Research Universities, Roger G. Noll, ed. Brookings Institution, 1998.

"Universities, Constituencies, and the Role of the States," co-author Linda R. Cohen. In Challenges to Research Universities, Roger G. Noll, ed. Brookings Institution, 1998.

"Students and Research Universities," co-author Gary Burtless. In Challenges to Research Universities, Roger G. Noll, ed. Brookings Institution, 1998.

"The Economics of University Indirect Cost Reimbursement in Federal Research Grants," co-author William P. Rogerson. In Challenges to Research Universities, Roger G. Noll, ed. Brookings Institution, 1998.

"The Future of Research Universities." In Challenges to Research Univesities, Roger G. Noll, ed. Brookings Institution, 1998.

"Communications Policy: Convergence, Choice, and the Markle Foundation," co-author Monroe E. Price. In A Communications Cornucopia, Roger G. Noll and Monroe E. price, eds. Brookings Institution, 1998.

"Unleashing Telecommunications: The Case for True Competition," co-author Robert E. Litan. *Brookings Policy Brief No. 39*, November 1998.

OTHER PUBLICATIONS

"Central City--Suburban Employment Distribution." In Final Report: Statistical Papers. President's Task Force on Suburban Problems, Department of Housing and Urban Development, December 1968.

"Current Mortgage Finance Problems." In Final Report: Policy and Program Papers. President's Task Force on Suburban Problems, Department of Housing and Urban Development, December 1968.

"A Statistical Analysis of the International Association of Chiefs of Police Poll of the Opinions of the Opinions of Policemen," Jet Propulsion Laboratory, Fall 1969.

"The Economics of Professional Basketball," co-author Benjamin A. Okner. Brookings Reprint No. 258, 1972. From statements before Senate Antitrust Subcommittee, Hearings on S.2373, September 21-23, 1971, Professional Basketball (Part I) and May 3, 1972, Professional Basketball (Part II).

"Prospects and Policies for CATV." Appendix On the Cable (report of the Sloan Commission on Cable Communications), co-authors John J. McGowan and Merton J. Peck. McGraw-Hill, 1971.

"The Price Commission and Regulated Public Utilities." Compendium on Price and Wage Controls: Now and the Outlook for 1973. Joint Economic Committee, U.S. Congress, 1972.

"The Administration Bill to Deregulate Surface Transportation." In Transportation Policy: The Economic-Political Interface, Anthony M. Woodward, ed. Business Research Center, Syracuse University, 1972.

"The Case for Viewer Sovereignty," co-authors Merton J. Peck and John J. McGowan. Research Report No. 135. Brookings Institution, June 1973.

"Regulating the Medical Services Industry." In The Changing Role of the Public and Private Sectors in Health Care. National Health Council, 1973.

"Decentralization of Public Television." In Conference on Communications Policy Research: Papers and Proceedings. Office of Telecommunications Policy, Washington, D.C., 1973.

"Subsidization through Regulation: The Case of Broadcasting," co-authors John J. McGowan and Merton J. Peck. In The Economics of Federal Subsidy Programs: A Compendium of Papers Submitted to the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee: Part 8 - Selected Subsidies. U.S. Government Printing Office, 1974.

"The Product Market in Sports." In Conference on the Economics of Professional Sports: Proceedings, George Burman, ed. National Football League Players Association, Washington, D.C., May 7, 1974.

"Comments Regarding Limitations on Programming Available for Broadcast on Pay-TV Channels." Submitted to Federal Communications Commission. Included in Communications--the Pay-Cable Industry, Hearings before Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, June 1975.

"Empirical Studies of Utility Regulation." In Rate of Return Regulation: Proceedings of the Future Planning Conference. Federal Communications Commission, 1976.

"The Role of Competition in the Electronic Media." In Proceedings of the Symposium on Media Concentration, Vol. 1, December 14-15, 1978. Bureau of Competition, Federal Trade Commission.

"Antitrust Exemptions: An Economic Overview." In National Commission for the Review of Antitrust Laws and Procedures, Report to the President and the Attorney General, Vol. II.

U.S. Department of Justice, 1979.

"Adaptive Approaches to the CO_2 Problem." In Carbon Dioxide, Climate and Society: A Research Agenda, Vol. II. U.S. Department of Energy, 1980.

"Institutional Aspects of Geothermal Development," co-authors Tom K. Lee, Venkatraman Sadanand and Louis L. Wilde. In Geothermal Probabilistic Cost Study, Vol. II (JPL 5030-491). Jet Propulsion Laboratory, 1981.

"Looking for Villains in the Energy Crisis." In Energy Independence for the United States: Alternative Policy Proposals, Nake M. Kamrany, ed. Fundamental Books, 1981; and in U.S. Options for Energy Independence, Nake M. Kamrany, ed. Heath Lexington Books, 1982.

"The Rationale for Social Regulation." In Government Regulation: New Perspective, Andrew R. Blair, ed. University of Pittsburgh, Graduate School of Business, October 1981.

"The Political Economy of Deregulation," co-author Bruce Owen. Regulation Vol. 7, No. 2 (March/April 1983): 19-24.

"Recent Social Policy: Comment." In Telecommunications Access and Public Policy, Alan Baughcum and Gerald Faulhaber, eds. Ablex Publishing Corp., 1984.

"The Economic Viability of Professional Baseball: Report to the Major League Baseball Players Association." In Representing Professional Athletes and Teams, Philip R. Hochberg and Martin E. Blackman, eds. Practicing Law Institute, 1986.

"The Twisted Pair." Regulation Vol. 11, No. 3/4 (1987): 15-22.

"Regulation After Reagan." Regulation Vol. 12, No. 3 (1988): 13-20.

"Statement of Goals and Strategies for State Telecommunications Regulation," numerous co-authors. Aspen Institute, 1989.

"Wirtschaftswachstum, High-Tech-Produkte und internationale Handelspolitik." In Deutsch-amerikanische Beziehungen: Politische Freundschaft und wirtschaftliche Kondurrenx? Haus der Evangelischen Publizistik, 1989.

"The Contemporary Development of International Trade: Approaches, Issues and Problems." In A Developing World Economy: The Ethics of International Cooperation. Vesper International, 1990.

"Competitive Issues: Enforcement Priorities and Economic Principles." In Antitrust Issues in Regulated Industries. Charles River Associates, 1991.

"Responding to Referees and Editors." CSWEP Newsletter (February 1993):15-17. Reprinted in CSWEP Newsletter Special Reprint Issue No. 2 (1996).

"Biographical Sketches of CSWEP Board Members." CSWEP Newsletter (October 1994): 17.

"Privatization Won't Foster R&D," co-author Linda R. Cohen. Public Affairs Report 36(3) (May 1995):1.

"Constitutional Reform in California," co-author Bruce E. Cain. CPS Brief Vol. 7 No. 14 (December 1995).

"Benefit-Cost Analysis in Environmental, Health, and Safety Regulation: A Statement of Principles," ten co-authors. American Enterprise Institute, 1996.

"Is There a Role for Benefit-Cost Analysis in Environmental, Health and Safety Regulation?," ten co-authors. Science 272 (April 12, 1996): 221-222.

"The Economics of Information." In The Economics of Information in the Networked Environment, Meredith A. Butler and Bruce R. Kingma, eds. Association of Research Libraries, 1996.

"Sports, Jobs, and Taxes," co-author Andrew Zimbalist. Brookings Review Vol. 15 No. 3 (Summer 1997): 35-39.

"Taxpayers Foot Bill for Sports Boom." Brookings Newsletter Vol. 7 No. 2 (Autumn 1997): 7.

OTHER PAPERS

"An Economic Analysis of Network Operations Research Techniques." Ph.D. dissertation, Harvard University, 1967.

"Perspectives on Rural-Urban Migration." Council of Economic Advisors, November 1968.

"The Economics of Pollution Abatement." Presented at Annual Meeting of the American Association for the Advancement of Science, December 1970.

"Comments Regarding the Public Interest in Commission Rules and Regulations Relating to Cable Television, Signal Importation and the Development of UHF Independent Commercial Stations," co-authors John J. McGowan and Merton J. Peck. Submitted to Federal Communications Commission, Docket 18397-A, February 10, 1971.

"A Dynamic Theory of Political Campaigning," co-author John A. Ferejohn. Conference on Game Theoretic Structures in Models of Political-Economic Processes, California Institute of Technology, February 1972, and at the Annual Meeting of American Political Science Association, September 8, 1972, Washington, D.C.

"Government Administrative Behavior and Technological Change." In Government Policies and Technological Innovation, Vol. II. National Technical Information Service, 1974.

"Public Policy and Innovation: Two Cases," co-author W. David Montgomery. In Government Policies and Technological Innovation, Vol. II. National Technical Information Service, 1974.

"The Causes of Regulatory Failures." In Oversight of Civil Aeronautics Board Practices and Procedures. Hearings before the Subcommittee on Administrative Practices and Procedures, Senate Committee on the Judiciary, 94th Cong., 1st Sess., 1975.

"Statement on Regulatory Reform." In Regulatory Reform - 1975, Hearings before the Committee on Government Operations, U.S. Senate, 94th Cong., 1st Sess., 1975.

"Responses to Disaster: Planning for a Great Earthquake in California," co-authors Linda Cohen and Barry Weingast. Social Science Working Paper No. 131, California Institute of Technology, 1976, revised April 1977.

"Statement on Public Policy Toward Sports." Hearings, Select Committee on Professional Sports, U.S. House of Representatives, September 1976.

"Statement on H.R. 11611." Drug Regulation Reform Act of 1978. Hearings: Subcommittee on Health and the Environment, U.S. House of Representatives, June 1978, p. 2156ff.

"The Economics of Boxing Regulation in California," co-authors Joel A. Balbien and James P. Quirk. Social Science Working Paper No. 366, California Institute of Technology, January 1981. Report to California Athletic Commission.

Implementing Tradable Emissions Permits for Sulfur Oxides Emissions in the South Coast Basin (three volumes), co-authors Glen Cass and Robert Hahn. Report to California Air Resources Board. Caltech Environmental Quality Laboratory, June 1983.

"Economic Effects of the Financial Interest and Syndication Rule," co-authors Robert Crandall and Bruce Owen. Economists, Inc., April 1983. Submitted to Federal Communications Commission, Inquiry on Television Networks.

"Pay and Performance in Baseball: Modeling Regulars, Reserves and Expansion," co-author Rodney D. Fort. Social Science Working Paper No. 527, California Institute of Technology, Pasadena, CA 1984.

"Promises, Promises: Campaign Contributions and the Reputation for Services," co-author John Ferejohn. Social Science Working Paper No. 545, California Institute of Technology, Pasadena, CA, 1984.

"Local Telephone Prices and the Subsidy Question," co-author Nina W. Cornell. Presented at Annual Meetings of the American Economic Association, December 1984, and at the Conference on Telecommunications Demand Modelling, Bell Communications Research, October 1985.

"The Economics of Bell Operating Company Diversification in the Post-Divestiture Telecommunications Industry," co-authors Kenneth Baseman and Stephen Silberman. ICF, Incorporated, September 1986. Submitted in First Triennial Review, Modification of Final Judgment, U.S. vs. AT&T.

"Two's Company; Three's a Crowd: Duverger's Law Reconsidered," co-author John A. Ferejohn. Presented at Annual Meeting of the American Political Science Association, September 1987.

"Telecommunications Reform in Brazil." Report to the International Bank for Reconstruction and Development, September 1990.

"Marketable Emissions Permits in Los Angeles." Report to the South Coast Air Quality Management District. Center for Economic Policy Publication No. 285, Stanford University, January 1991.

"Statement on the Baseball Antitrust Exemption." Hearings before the Subcommittee on Antitrust, Monopolies, and Business Rights, Committee on the Judiciary, United States Senate, December 1992.

"Regulatory Transparency in Telecommunications: Public Interest Standards for BOC Entry into Long Distance," co-author Robert Litan. Submitted to FCC Docket CCBPol 98-4.

POPULAR PUBLICATIONS

"School Bonds and the Future of Pasadena." Pasadena Star-News, April 20, 1969, p. C-1.

"After Vietnam, Another Recession?" Caltech News, June 1969.

"People is a Dirty Word," (with others). Pest Control Operators News 30 (February/March 1970). (Transcript of series of panel discussions, radio station KMPC, Los Angeles.)

"Quake Prediction: For Public Officials the Problems Are Mind-Bending." Los Angeles Times,
May 2, 1976, Part VIII, p. 5.

"Defending Against Disasters." Engineering and Science 39 (May-June 1976).

"Professional Sports: Should Government Intervene?" San Francisco Chronicle and several other newspapers, June 7, 1977.

"Fact and Fancy About the Energy Crisis." Pasadena Star-News, July 27, 1980, p. 17.

"Looking for Villains in the Energy Crisis." Town Hall Reporter 13, No. 8, Town Hall of California, August 1980, p. 12.

"Using the Marketplace to Reform Regulation." Washington University Center for the Study of American Business, Whittemore House Series 5.

"Leasing the Air: An Alternative Approach to Regulation?" Engineering and Science; Vol. 46,

No. 1 (September 1982), pp. 12-17.

"Television Ownership and the FCC: Let a Free Market Set the Pace." New York Times, August 26, 1984, p. 2 (Business).

"Trends in California's Economy: Implications for the Future." Engineering and Science LVI (1) (Fall 1992), pp. 9-13.

"Help Business, but Beware of High-tech Pork," co-author Linda R. Cohen. USA Today, March 18, 1993, p. 11A.

"Privatizing Public Research," co-author Linda R. Cohen. Scientific American, September 1994, pp. 72-77. Reprinted in Leading Economic Controversies of 1996, Edwin Mansfield, editor. New York: Norton, 1996.

"The Decline of Public Support for R&D." Framtider International, Vol. 5 (1995), pp. 23-27.

"Wild Pitch." New York Times, April 11, 1996.

BOOK REVIEWS

"Cure for Chaos, by Simon Ramo." Engineering and Science 33 (November 1969).

"Technology and Market Structure, by Almarin Phillips." Journal of Economic Literature, Vol. 10 (December 1972): 1253-1255.

"The Telecommunications Industry, by Gerald W. Brock." Journal of Economic Literature, Vol. 20 (September 1982): 1096-97.

"Presidential Management of Science and Technology, by W. Henry Lambright." Science, Vol. 231, No. 4739 (February 14, 1986): 749.

"Telecommunications Economics and International Regulatory Policy, by Snow and Jusawalla." Information Economics and Policy, Vol. 2, No. 4 (1986): 318-319.

"The Economist's View of the World, by Steven E. Rhoads." American Political Science Review, Vol. 81, No. 1 (March 1987): 339-341.

"Air Pollution Regulation, by Richard A. Liroff." Environmental Professional, Vol. 9, No. 4 (1987): 359-360.

"The Sports Industry and Collective Bargaining, by Paul D. Staudohar." Industrial and Labor Relations Review, Vol. 41, No. 2 (January 1988): 314-315.

"The Social Context of New Information and Communication Technologies, by Elia Zureik and Dianne Hartling." Information Economics and Policy Vol. 3, No. 2 (1988): 204.

"The United States and the Direct Broadcast Satellite, by Sara Fletcher Luther." Information Economics and Policy, Vol. 4, No. 1 (1989/90): 83-84.

"Regulation and Markets, by Daniel F. Spulber." Journal of Economic Literature, Vol. 28, No. 4 (December 1990): 1757-1759.

"A Legislative History of the Communications Act of 1934, edited by Max Paglin." Information Economics and Policy, Vol. 4, No. 2 (1990): 190-94.

"International Telecommunications in Hong Kong: The Case for Liberalization, by Milton Mueller." Information Economics and Policy, Vol. 4, No. 3 (1990): 273-274.

"Strategy and Choice, edited by Richard J. Zeckhauser." Journal of Policy Analysis and Management, Vol. 12, No. 2 (Spring 1993): 386-388.

"Government's Role in Innovation, by D.P. Leyden and A.N. Link." Journal of Economics (Zeitschrift für National Okönomie), Vol. 54, No. 3 (1994): 333-335.

"Regulation, Organizations, and Politics, by Lawrence S. Rothenberg." American Political Science Review, Vol. 89, No. 3 (September 1995): 768-769.

"The Political Economy of Public Administration, by Murray J. Horn." Economic Record 73 (June 1997):
187-188.

"Making and Breaking Governments, by Michael Laver and Kenneth A. Shepsle." Zeitschrift für Nationalökonomie (Journal of Economics), Vol. 66, No. 3 (December 1997): 324-326.

REVIEW ARTICLES

"Assessing the Energy Situation." Science, Vol. 208, No. 4445 (May 16, 1980): 701-702.

"Energy Data and Political Polarization." Science, Vol. 214, No. 4524, (November 27, 1981): 1019.

"Handbook for Reform: Breyer on Regulation." Columbia Law Review, Vol. 83, No. 4 (May 1983): 1109-1119.

"Rules in the Making, by Magat, Krupnick, and Harrington." Rand Journal of Economics, Vol. 18, No. 3 (Autumn 1987): 461-464.

"Fields of Greed." New York Times Book Review, (April 4, 1993): 24-25.

"Risky Business: Breaking the Vicious Circle." Regulation, Vol. 16, No. 3 (1993): 82-83.

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Curriculum Vitae

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Education

B.A., Economics, University of Alberta, 1976
Ph.D., California Institute of Technology, 1980

Current Employment

Current Permanent Position: Professor of Economics, Northwestern University

On Leave for 1998-99 to serve as Chief Economist for Federal Communications Commision

Honors ,Awards and Research Grants

Graduated from the University of Alberta with distinction, 1976
Earl C. Anthony Fellowship, 1976-77
Canada Council Doctoral Fellowship, 1979-80
Shelby Cullom Davis Fellowship, 1979
NSF Grant SES-8320451, "Moral Hazard, Reputation, and Product Quality," March 1984 - March 1985
NSF Grant SES-8504304, "Moral Hazard, Reputation, and Product Quality,"April 1985 - September 1987
NSF Grant IRI-8705477, "Contracting Under Asymmetric Information,"July 1987 - December 1989
Named to Household International Professorship in Economics, September 1987 - August 1989
Lynde & Harry Bradley Foundation Research Grant, "An Economic Analysis of Defense Procurement Regulations," June 1989 - December 1991.
NSF Grant SES-8906751, "Profit Regulation of Defense Contractors," August 1, 1989 - July 31, 1991.

Olin Fellow at The Centre for the Study of the Economy and the State, University of Chicago, October 1, 1989 - June 30, 1990.

Faculty Fellow, Center for Urban Affairs and Policy Research, Northwestern University, September 1991-August 1997.

Smith Richardson Foundation, Inc. Research Grant, "Economic Incentives and the Defense Procurement Process," March 1, 1993 - May 31, 1995.

Research and Teaching Interests

Incentives and Information in Markets and Organizations, Regulation, Telecommunications, Cost Accounting, Industrial Organization, Defense Procurement, and Health Care.

Employment History

Research Assistant to Canadian Member of Parliament, Arnold Malone, June 1975 - September 1975

Teaching Assistant at University of Alberta, September 1975 - June 1976

Economist, Department of Industry, Trade and Commerce, Government of Alberta, June 1976 - September 1976

Research Assistant, Environmental Quality Laboratory, Caltech, June 1977 - September 1977

Economist, Long Range Planning and Structural Analysis Division, Department of Finance, Government of Canada, June 1978 September 1978

Teaching Assistant to Professor Charles R. Plott, Division of Humanities and Social Sciences, Caltech, September 1979 - 1980

Assistant Professor of Economics, Stanford University, September 1980 - August 1984

Associate Professor of Economics, Northwestern University, September 1984 - May 1990

Professor of Economics, Northwestern University, May 1990 - Present

Chair, Economics Department, Northwestern University, September 1996 - August 1998.

Professional Activities

Editor of Defense and Peace Economics, January 1995 - December 1999.
Member of the editorial board of Defense and Peace Economics, September 1991 - present.
Member of the editorial board of Review of Accounting Studies, September 1993 to present.
Member of the editorial board of Journal of Industrial Economics, October 1995- Sept. 1998.

Consultant to: Federal Trade Commission, Institute for Defense Analysis, Logistics Management Institute, Office of the Secretary of Defense (Program Analysis and Evaluation), RAND Corporation, US Department of Justice

Refereed Publications

"Aggregate Expected Consumer Surplus As a Welfare With an Application to Price Stabilization," Econometrica, 49, No. 2, (March 1980), pp. 423-436.
"Agriculture in Development: A Game-Theoretic Analysis," with Robert Bates, Public Choice, 35, (1980), pp. 513-527.
"The Social Costs of Monopoly and Regulation: A Game-Theoretic Analysis," Bell Journal of Economics, 13, No. 2, (Autumn 1982), pp. 391-401.
"Reputation and Product Quality," Bell Journal of Economics, 14, No. 2, (Fall 1983), 508-515.
"Consumer Misperceptions, Market Power and Product Safety," with Mitchel Polinsky, Bell Journal of Economics, 14, No. 2, (Fall 1983), 581-589.
"A Note on the Incentive for a Monopolist to Increase Fixed Costs as a Barrier to Entry," Quarterly Journal of Economics, 396, May 1984, 399-402.
"Efficient Reliance and Damage Measures for Breach of Contract," Rand Journalof Economics, Spring 1984, 39-53.
"Repeated Moral Hazard," Econometrica, 53, January 1985, 69-76.
"The First-Order Approach to Principal Agent Problems," Econometrica, 53, November 1985, 1357-1368.
"Robust Trading Mechanisms" with Kathleen Hagerty, Journal of Economic Theory, 42, June 1987, 94-107.
"The Dissipation of Profits by Brand Name Capital and Entry When Price Guarantees Quality," Journal of Political Economy, 95, August 1987, 797-809.
"A Note on the Existence of Single Price Equilibrium Price Distributions," Review of Economic Studies, 54, April 1987, 339-342.

"Price Advertising and the Deterioration of Product Quality," Review of Economic Studies, 55, April 1988, 215-230.

"Profit Regulation of Defense Contractors and Prizes for Innovation," Journalof Political Economy, 97, December 1989, 1284-1305.

"Quality vs. Quantity In Military Procurement," American Economic Review, 80,March 1990, 83-92.

"Excess Capacity in Weapons Production: An Empirical Analysis," Defence Economics, 2, 1991, 235-50.

"Optimal Depreciation Schedules for Regulated Utilities," Journal of Regulatory Economics, 4, 1992, 5-33.

"Contractual Solutions to the Hold-Up Problem," Review of Economic Studies, 59, October 1991, 777-794.

"Incentives, the Budgetary Process, and Inefficienctly Low Production Rates in Defense Procurement," Defence Economics, 3, 1991, 1-18.

"Overhead Allocation and Incentives for Cost Minimization in Defense Procurement," The Accounting Review, 67, 1992, 671-690.

"Choice of Treatment Intensities by a Nonprofit Hospital Under Prospective Pricing," Journal of Economics and Management Strategy, 3(1), Spring 1994, 7-52..

"Economic Incentives and the Defense Procurement Process," Journal of Economic Perspectives, 8(4), Fall 1994, 65-90.

"Inter-Temporal Cost Allocation and Managerial Investment Incentives," Journal of Political Economy, 105(4), 1997, 770-795.

Other Publications

"Electric Generation Plants" Appendix F.1 in Implementing Tradable EmissionsPermits for Sulfur Oxides Emissions in the South Coast Air Basin, Vol. II, by Glen R. Cass, Robert W. Hahn, Roger G. Noll, ARB Contract No. A8-141-31, June 30, 1982.

"A Comment on Political Institutions and Fiscal Policy: Evidence from the U.S. Historical Record," Journal of Law Economics and Organization, 6, Special Issue, Conference on "The Organization of Political Institutions", 1991, 155-166.

"Inefficiently Low Production Rates in Defense Procurement: An Economic Analysis," Leitzel, Jim and Jean Tirole, eds., Incentives in Defense Procurement. Boulder: Westview Press, 1993.

Profit Regulation of Defense Contractors and Prizes for Innovation, RAND, R-3635-PA&E, 1991.

An Economic Framework for Analyzing DoD Profit Policy, RAND, R-3860-PA&E, 1991.

Overhead Allocation and Incentives for Cost Minimization in Defense Procurement, RAND, R-4013-PA&E, 1992.

"Review of 'A Theory of Incentives in Procurement and Regulation,'" book review,Journal of Political Economy, 102, 1994, 397-402

On the Use of Transfer Prices in DoD: The Case of Repair and Maintenance of Depot Level Reparables by the Air Force, Logistics Management Institute Paper PA303RD2, January 1995, Logistics Management Institute, McLean, VA.

"Incentive Models of the Defense Procurement Process," in Hartley, Kieth, and Todd Sandler, eds., The Handbook of Defense Economics, North Holland, 1995, 309-346..

with Roger Noll, "The Economics of University Indirect Cost Reimbursement in Federal Research Grants," in Roger Noll, ed., Challenges to the Research University. Washington: Brookings Institution, 1997.

Recent Papers

with Tom Frazier, "Renegotiation of Fixed Price Contracts on the F-16 Program," mimeo.

"The Use of Simple Menus of Contracts in Cost-Based Procurement and Regulation," mimeo.

Work in Progress

Economic Incentives and the Defense Procurement Process. Cambridge: Harvard University Press, manuscript in preparation.

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Education:

Ph.D. in Economics, Yale University, 1963; M.A. in Economics, 1958.
B.A. in Economics, Amherst College, 1957 (with honors).

Professional Positions and Awards:

Professor of Economics, University of Massachusetts, since 1986.
Chairman, Department of Economics, University of Massachusetts, 1991 to 1994.
General Editor, Review of Industrial Organization, since 1990.
Professor of Economics, Department of Economics, University of Michigan, 1971-86.
Associate and Assistant Professor, Department of Economics, University of Michigan, 1963-71.
Special Economic Assistant to the Assistant Attorney General for Antitrust, U.S. Department of Justice, Washington, D.C., 1967-1968.
Chairman, The Transportation and Public Utilities Group of the American Economic Association, 1976-1977.
President, the Industrial Organization Society, 1990-1991.
"Distinguished Member," Transportation and Public Utility Group, American Economic Association, 1995.

Fields of Teaching and Research:

Industrial organization. Public policies toward business, particularly Antitrust and Regulation. Microeconomics.

Books Published:

The Economics of Industrial Organization, 4th ed., Englewood Cliffs, N.J.: Prentice-Hall, 1997 (with a Teacher's Manual).

Public Policies Toward Business, 8th ed., Homewoood, IL: Richard D. Irwin, 1991.

<u>The Economics of Industrial Organization</u>, 3d ed., Englewood Cliffs, NJ: Prentice-Hall, 1990 (with a <u>Teacher's Manual</u>).

<u>Unconventional Wisdom: Essays on Economics in Honor of John Kenneth Galbraith</u>, Boston: Houghton Mifflin, 1990, co-editor (with Samuel Bowles and Richard Edwards).

<u>Mainstreams in Industrial Organization</u>, 2 vols., Dordrecht: Kluwer Academic Publishers, 1986, co-editor (with H. W. de Jong).

<u>The Ultimate Deterrent: Foundations of US-USSR Security Under Stable Competition</u>, New York: Praeger Publishers, 1986.

<u>The Economics of Industrial Organization</u>, 2d ed., Englewood Cliffs: NJ, Prertice-Hall, 1985.

<u>Public Policies Toward Business</u>, 7th edition, Homewood, IL: Richard D. Irwin, 1985.

<u>Economics</u>, Englewood Cliffs, NJ, Prentice-Hall, 1983 (with W.H. Locke Anderson and Ann Putallaz). Also <u>Microeconomics</u>, and a <u>Teacher's Guide</u>.

<u>Economic Regulation: Essays in Honor of James R. Nelson</u>, East Lansing: Michigan State University Press, 1981, co-editor (with Kenneth D. Boyer).

<u>The Economics of Industrial Organization</u>, Englewood Cliffs, NJ: Prentice-Hall, 1979.

<u>Public Policies Toward Business</u>, 6th ed., Homewood, IL: Richard D,. Irwin, 1979.

<u>Public Policies Toward Business: Readings and Cases</u>, 2d ed. Homewood, IL: Richard D. Irwin, 1979.

<u>Public Enterprise: Economic Analysis of Theory and Practice</u>, Lexington, MA: Heath-Lexington Books, 1976, editor.

<u>Regulation and Entry</u>, East Lansing: Institute of Public Utilities, Michigan State University, 1976, co-editor (with M.W. Klass).

<u>The Treatment of Market Power</u>, New York: Columbia University Press, 1975.

<u>Public Policies Toward Business: Readings and Cases</u>, Homewood, IL: Richard D. Irwin, 1975.

<u>Public Policies Toward Business</u>, 5th ed., Homewood, IL: Richard D. Irwin, 1975, (with Clair Wilcox).

Regulation in Further Perspective: The Little Engine that Might, Cambridge, MA: Ballinger Publishing, 1974, co-editor (with T.G. Gies).

Market Power and Economic Welfare, New York: Random House, 1970. Chinese edition, 1980.

Utility Regulation: New Directions in Theory and Policy, New York: Random House, 1966, co-editor (with T.G. Gies).

Economic Performance under Public Ownership: British Fuel and Power, New Haven: Yale University Press, 1965. Italian edition, L'economicita di Gestione Nell'impresa Pubblica, CIRIEC, 1968.

Journals Edited and Published:

Review of Industrial Organization, Kluwer Academic Publishers, 6 issues per year, approximately 900 pages total, including occasional Special Issues and Symposia. Continuing as General Editor, since 1990.

Articles and Contributions Published:

"Forbearance/Deregulation in the Face of Continued Dominance and Market Power," chapter in David W. Conklin, ed., Adapting to New Realities, Richard Ivey School of Business, University of Western Ontario, London, Ontario: 1998.

"Scholarly Restraints? ABA Accreditation and Legal Education" (with George B. Shepherd), Cardozo Law Review, vol. 18, no. 6, July 1998, pp. 2091-2257.

"Electric Power: From Monopoly to Effective Competition?" chapter in Larry L. Duetsch, ed., Industry Studies, 2d ed., Armonk, N.Y.: M.E. Sharpe, 1998.

"Market Power in the Electric Utility Industry: An Overview," Electric Industry Briefing Papers, National Council on Competition and the Electric Industry, National Association of Regulatory Utility Commissioners, November 1997, pp. 1-18.

"Inconsistency in U.S. Merger Policies," in Jorn Kruse, Wettbewerbspolitik im Spannungsfeld nationaler und internationaler Kartellrechtsordnungen, 1997.

"Monopoly and Antitrust Policies in Network-Based Markets Such as Electricity," chapter in Shimon Awerbuch and Alistair Preston, eds., The Virtual Utility: Accounting, Technology and Competitive Aspects of the Emerging Utility, Kluwer Academic Publishers, 1997.

"Creating Effective Competition: What Has Worked, What Hasn't," a chapter in David Gabel and David F. Weiman, Competition in Network Industries, 1997.

"Control Over Technology by Deregulated Monopolies," Revue d'Economie Industrielle, 80, Spring 1997.

"Dim Prospects: Competition in Electricity, Telecommunications and Railroads," Antitrust Bulletin, Spring 1997.

"Anti-Competitive Impacts of Secret Strategic Pricing in the Electricity Industry," Public Utilities Fortnightly, February 14, 1997.

"Donald Turner and the Economics of Antitrust," Antitrust Bulletin, Winter 1996-97.

"Deregulation: From Monopoly Only to Dominance? Telecommunications, Railroads and Electricity," Quarterly Review, National Regulatory Research Institute, Summer, 1996.

"Contestability vs. Competition -- Once More," Land Economics, vol. 71, no. 3, August 1995, pp. 299-309.

"Some Praise for the Reviewing Process, and a Primer on It," a chapter in George B. Shepherd, ed., Rejected: Leading Economists Ponder the Publication Process, Sun Lakes, AZ: Thomas Horton and Daughters, 1995.

"The Airline Industry," (with James W. Brock), chapter in Walter Adams, ed., The Structure of American Industry, 8th ed., New York: Macmillan, 1994.

"Reviving Regulation and Antitrust," Electricity Journal, May 1994.

"Economic Criteria for Setting National Defense Spending," chapter in Manas Chatterji, ed., Economic Issues in World Disarmament, New York: Macmillan, 1994.

"Antitrust Repelled, Inefficiency Endured: Lessons of IBM and General Motors for Future Antitrust Policies," Antitrust Bulletin, Spring, 1994, pp. 203-34.

"DuPont and the Titanium Dioxide Industry," (with Douglas Dobson and Robert Stoner) a chapter in John E. Kwoka and Lawrence J. White, eds., The Antitrust Revolution, 2d ed., New York: Macmillan, 1994.

"Comment on Paper by Edythe Miller," Utilities Policy, October 1993.

"Constraining Hub Dominance in the Airline Industry," (with Lisa Saunders), Logistics and Transportation Review, September 1993, pp. 201-20.

"Long Distance Telephone Service: Dominance in Decline?" a chapter in Larry L. Duetsch, ed., Industry Studies, Englewood Cliffs, N.J.: Prentice-Hall, 1993.

"Ramsey Pricing: Its Uses and Limits," Utilities Policy, October 1992.

Regulation and Efficiency: A Reappraisal of Research and Policies, Columbus, Ohio: National Regulatory Research Institute, Ohio State University, August 1992, 88 pages.

"Market Dominance under U.S. Antitrust," Review of Industrial Organization, 6 (Summer 1991), pp. 161-76.

"Economic Analysis to Guide Antitrust Enforcement: Prospects for Section 2," New York Law School Law Review, 35 (Fall 1991), pp. 917-38.

"Theories of Industrial Organization," chapter in Harry First, Eleanor M. Fox and Robert Pitofsky, eds., Antitrust for Its Second Century, Westport, Conn.: Greenwood Press, 1991.

"Section 2 and the Problem of Market Dominance," in A Symposium on the 100th Anniversary of the Sherman Act and Upon the 75th Anniversary of the Clayton Act, The Antitrust Bulletin, 35 (Winter 1990), pp. 833-78.

Dominance, Non-Dominance, and Contestability in a Telecommunications Market: A Critical Assessment, Columbus, Ohio: National Regulatory Research Institute, April 1990 (with Robert E. Graniere), chapters 2-5.

"The Process of Effective Competition," Review of Industrial Organization, Autumn 1990.

"Potential Competition versus Actual Competition," Administrative Law Review, Winter 1990.

"Mainstreams and Recent Schools in Industrial Organization," Revue Economique, May 1990.

"Publishing Performance in Industrial Organization: A Comment," Review of Industrial Organization, Summer 1990.

"On the Nature of Monopoly," chapter in Samuel Bowles, Richard Edwards and William G. Shepherd, eds., Unconventional Wisdom: Essays on Economics in Honor of John Kenneth Galbraith, Boston: Houghton Mifflin, 1989.

"Efficient Profits vs. Unlimited Capture, as a Reward for Superior Performance: Analysis and Cases," Antitrust Bulletin, Spring 1989.

"Capital Gains as Economic Rent," Review of Social Economy, Summer 1989.

"Self-Interest and National Security," American Economic Review, May 1988.

"Mainstream Economic Criteria in Fourteen Recent Antitrust Cases," Antitrust Law and Economics Review, 1988.

"Three 'Efficiency School' Hypotheses About Monopoly Power," Antitrust Bulletin, Summer 1988.

"Public Enterprise: Criteria and Cases," chapter in Henry W. de Jong, ed., The Structure of the European Economy, 2d ed., The Hague: Martinus Nijhoff, 1988.

"Vindicating Private Antitrust Litigation: A Review Article," Antitrust Law and Economics Review, 1988.

"Contestability and Railroad Mergers," International Journal of Transport Economics, June 1988.

"Converting Dominance to Competition: Criteria for Effective Deregulation," chapter in Harry M. Trebing, ed., New Regulatory and Management Strategies in a Changing Market Environment, East Lansing: Institute of Public Utilities, Michigan State University, 1987.

Four articles in The New Palgrave's, London, Macmillan, 1987, on: "Market Share," "Concentration," "The Hirschman-Herfindahl Index," and "Joe S. Bain."

"Tobin's Q and the Structure-Performance Relationship: A Comment," American Economic Review, December 1986.

"On the Core Concepts of Industrial Economics," chapter 2 in Henry W. de Jong and William G. Shepherd, eds., Mainstreams in Industrial Organization, 2 vols., Dordrecht: Kluwer Academic Publishers, 1986.

"Assessing 'Predatory' Actions by Market Share and Selectivity," Antitrust Bulletin, Spring 1986.

"Illogic and Unreality: The Odd Case of Ultra-Free Entry; and Inert Markets," in R. E. Grieson, ed., Regulation and Antitrust, Lexington, Mass.: D.C., Heath, 1986.

"Economics in Court: An 8-Case Antitrust Summary," Antitrust Law and Economics Review, 1986.

" 'Contestability' vs. Competition," American Economic Review, September 1984.

"Winning Bids in Five Types of Auctions: Concentration Matters," Antitrust Bulletin, Spring 1984.

Concepts and Effects of Barriers to Entry, a volume of the Journal of Reprints for Antitrust Law and Economics, 1983 co-edited (with J.S. Heywood.)

"Concepts of Competition and Efficient Policy in the Telecommunicatiors Sector," in Eli Noam, ed., Regulation and New Telecommunications Networks, 1983.

"Sustainability, Entry Restrictions, and Induced Technological Bias," Quarterly Review of Economics and Business, Winter 1982 (with David Sappington).

"Causes of Increased Competition in the U.S. Economy, 1939-1980," Review of Economics and Statistics, November 1982.

"Monopoly Profits and Economies of Scale," in John V. Craven, ed., Industrial Organization, Antitrust, and Public Policy, Boston: Kluwer Academic Publishers, 1982.

"Public Enterprise: Purposes, Performance, Structure," in W.T. Stanbury and F. Thompson, eds., Managing Public Enterprises, New York: Praeger, 1982.

"Price Structure in Electricity," in A.L. Danielson and D.R. Kamerschen, eds., Current Issues in Public Utility Economics: Essays in Honor of James C. Bonbright, Lexington, MA: Heath-Lexington Books, 1982.

"Sustainability and Competition," chapter in Thomas G. Gies and Werner Sichel, eds., Deregulation: Appraisal Before the Fact, Ann Arbor: Bureau of Business Research, University of Michigan, 1982.

"Sustainability, Deregulation and Separate Subsidiaries," in Harry M. Trebing, ed., Regulatory Issues in the 1980s, East Lansing: Institute of Public Utilities, Michigan State University, 1981.

"Public Enterprise in Western Europe and the United States," in H.W. de Jong, ed., The Structure of the European Economy, The Hague: Martinus Nijhoff, 1980.

"Forward," in Christopher Green, Canadian Industrial Organization and Policy, Scarborough, Ontario, McGraw-Hill Ryerson, 1980;

and in the 2d edition, 1986.

"Anatomy of a Monopoly: (I) Excess Capacity and the Control of Price," Antitrust Law and Economics Review, 11 (1979).

"British and United States Experience," in P. Fernandes, ed., Financing of Public Enterprises in Developing Countries, Ljubljana, Yugoslavia: International Center for Public Enterprises, 1979.

"The Dominant Firm in Relation to Market Structure," in A.P. Jacquemin and H.W. de Jong, Welfare Aspects of Industrial Markets, The Hague: Martinus Nijhoff, 1977.

"Bain's Influence on Research into Industrial Organization," chapter 1 in R.T. Masson and P.D. Qualls, Essays on Industrial Organization in Honor of Joe S. Bain, Cambridge, Mass.: Ballinger, 1976.

"Rate Structure, Social Efficiency and Equity," chapter in Harry M. Trebing, ed., New Dimensions in Public Utility Pricing, East Lansing: Institute of Public Utilities, Michigan State University, 1976.

"General Conditions of Entry," a chapter in Michael W. Klass and William G. Shepherd, eds., Regulation and Entry, East Lansing: Institute of Public Utilities, Michigan State University, 1976.

"Banking," chapter in Walter Adams, ed., The Structure of American Industry, 5th ed., New York: Macmillan, 1976; and (with Arnold Heggestad) in the 6th and 7th editions.

"The Elements and Evolution of Market Structure," in Henry de Jong and Alex Jacquemin, eds., Markets, Corporate Behavior and the State, The Hague: Martinus Nijhoff, 1976.

"Objectives, Types and Accountability," Chapter 3, "British and United States Experience," Chapter 6, and "Public Enterprise in Financial Sectors," Chapter 8, in William G. Shepherd, ed., Public Enterprise: Economic Analysis of Theory and Practice, Lexington, MA: Heath-Lexington Books, 1976.

"The Scope for Reversal: Foreign Multinational Firms in the United States," chapter in Werner Sichel, ed., Multinational Corporations and the U.S. Economy, Ann Arbor: Bureau of Business Research, University of Michigan, 1976.

"The Economics of Section 2," Papers and Proceedings, American Bar Association, 1974.

"Regulation, Entry and Public Enterprise," chapter in Thomas G.

Gies and William G. Shepherd, eds., Regulation in Further Perspective: The Little Engine that Might, Cambridge, MA: Ballinger Publishing, 1974.

"Managerial Discrimination in Large Firms," Review of Economics and Statistics, November 1973.

"The Yields from Abating Market Power," Industrial Organization Review, Spring 1973.

"Entry as a Substitute for Regulation," American Economic Review, May 1973.

"Public Enterprise," chapter in Ralph Nader and Mark J. Green, eds., Corporate Power in America, New York, Grossman, 1973.

"British Industrial Concentration: A Comment," Oxford Economic Papers, November 1972.

"Structure and Behavior in British Industries, With U.S. Comparisons," Journal of Industrial Economics, July 1972.

"Elements of Market Structure: An Inter-industry Analysis," Southern Economic Journal, April 1972.

"The Elements of Market Structure," Review of Economics and Statistics, February 1972.

"Large-Firm Employment Policies Toward Blacks and Women," Report to U.S. Office of Economic Opportunity, Washington, D.C.: 1971.

"The Margin of Competition in Communications," chapter in William M. Capron, ed., Technological Change in Regulated Industries, Washington, D.C.: Brookings Institution, 1971.

"Changing Contrasts in British and American Antitrust Policies," chapter in Werner Sichel, ed., Antitrust Policy and Economic Welfare, Ann Arbor: Graduate School of Business, University of Michigan, 1970.

"Regulation and its Alternatives," Stanford Law Review, February, 1970.

"Market Power and Racial Discrimination in White-Collar Employment," Antitrust Bulletin, Spring 1969.

"Leading-Firm Conglomerate Mergers," Antitrust Bulletin, Winter 1968 (with James S. Campbell).

"Alternatives for Public Expenditure," chapter in Richard E. Caves and Associates, Britain's Economic Prospects, Washington, D.C.: Brookings Institution, 1968.

"What Does the Survivor Technique Show About Economies of Scale?" Southern Economic Journal, July 1967.

"On Appraising Evidence About Market Power," Antitrust Bulletin, Spring 1967.

"Regulatory Constraints and Public Utility Investment," Land Economics, August 1966.

"Residence Expansion in the British Telephone System," Journal of Industrial Economics, July 1966.

"Marginal-Cost Pricing in American Utilities," Southern Economic Journal, July 1966, and "A Reply," ibid., January 1967.

"Changes in British Industrial Concentration, 1951-1958," Oxford Economic Papers, March 1966.

"Comparative Economic Systems: Nationalized Industry," American Economic Review, May 1965.

"Cross-Subsidizing: A Reply," Oxford Economic Papers, March 1965.

"British Nationalized Industry: Performance and Policy," Yale Economic Essays, Spring 1964.

"Trends of Concentration in American Manufacturing Industry, 1947-58," Review of Economics and Statistics, May 1964.

"Cross-Subsidizing and Allocation in Public Firms," Oxord Economic Papers, March 1964.

"Development Loans to Private Borrowers," Economic Development and Cultural Change, April 1964.

"Simultaneous Equations Techniques," chapter in Geoffrey S. Shepherd, Agricultural Price Analysis, 5th edition, Ames: Iowa State University Press, 1962.

"On Sales-Maximizing and Oligopoly Behavior," Economica, November 1962.

"A Comparison of Industrial Concentration in the United States and Britain," Review of Economics and Statistics, February 1961.

"Competition and Growth: The Lesson of West Germany - A Comment," American Economic Review, December 1960 (with Alasdair I. MacBean).

Research in Preparation or Submitted:

Competition and Progress, a book-length reassessment of the nature of competition and of policies toward market power.

Classic Micro-Economics, with George B. Shepherd. A concise textbook of micro-economic concepts.

"Competition and Extremism: Failures in the Marketplace of Ideas"

"The Emergence of Dominance: Properties of Instability in the Competitive Process"

"The Trend of Competition in the US. Economy, 1980-1997"

"The Theory of Actual Entry"

Other Professional Activities:

Visiting Professor: Williams College, 1982; University of Massachusetts, 1984-1985.

Preparation of numerous conferences on industrial organization, antitrust, regulation and public enterprise.

University of Glasgow, Fulbright Graduate Fellowship, 1959-60.

Research in Britain, in 1959-60, 1962, 1964, 1967, 1969, 1971, 1974, 1978, 1985 and 1987.

Awarded Ford Foundation Faculty Fellowship, 1967-68 (declined, to do the year at the Antitrust Division).

Numerous book reviews, refereeing of articles and books, screening research proposals, comments on other papers in conference volumes, etc., not listed individually here.

Addresses and seminars at various universities and colleges in the U.S. (University of Chicago, University of Michigan, University of Cincinnati, Wesleyan University, Amherst College, Miami University, University of Miami, University of Wyoming, Michigan State University, Middlebury College, College of William & Mary, University of New Hampshire); Canada (McGill University, Dalhousie University); Britain (London School of Economics, Oxford University, Cambridge University, University of Lancaster); Europe (University of Amsterdam, University of Lujubljana, University of Louvain, University of Rome); China (Nankai University) and Japan (Doshisha University).

Associate Conferee at The Merrill Center for Economics, summer session, June-August, 1956.

Invited 4-week lecture series on Industrial Organization, Nankai University, Tianjin, China, April-May 1983. Further lectures at Nankai University, May, 1989; and September 1994 (for three weeks).

Director of Graduate Studies, Chairman of the Graduate Program Committee, and Chairman of the Graduate Admissions and Fellowships Committee, Department of Economics, University of Michigan, 1966-67, 1968-70.

Director of Graduate Studies in Economics, University of Massachusetts, 1990-91.

Statement and testimony for the Subcommittee on Antitrust and Monopoly, U.S. Senate; on industrial concentration, 1965; on antitrust policy in Britain, 1968; on discrimination in managerial employment, 1972; and for the House Committee on Energy, on Electric Sector competition, 1985.

Adviser at various times to: Antitrust Division, U.S. Department of Justice. U.S. Federal Trade Commission. U.S. Senate Subcommittee on Antitrust and Monopoly. Regulatory commissions in Massachusetts, the District of Columbia and Michigan. The African Development Bank, Abidjan, Ivory Coast. Various city governments, foundations, and private companies.

Testimony and consulting as an expert witness in antitrust and regulatory cases, including cases involving: IBM Corp. (California Computer Products), AT&T (Diversified Industries), DuPont Company (the titanium dioxide case), G.D. Searle, Pfizer Inc. (International Rectifier), the Santa Fe and Southern Pacific railroad merger, Southern California Edison (Cities of Anaheim et al); Macy's-Federated merger; Chicago Daily Herald v. Chicago Tribune et al; Rochester Gas & Electric; drug producers (price discrimination); the Union Pacific and Southern Pacific railroad merger; and before the Federal Energy Regulatory Commission (the Williams Pipeline case, 1992), and the regulatory commissions of the District of Columbia, New Jersey, Florida, Illinois, Maine, Massachusetts, Montana, New Hampshire, and Virginia. Also, extensive participation after 1995 in electric-industry competitive questions, among all sides of the industry (utilities, would-be entrants, commission staff, conferences, public and cooperative groups, etc.).

Adviser to the African National Congress, South Africa, on South African antitrust and related industrial policies, during 1992-94.

Adviser on industrial policies to officials of the Republic of Slovenia, since March 1995; visits in 1995 and 1996.

Chairman, the Ann Arbcr Cablecasting Commission, 1973.

Co-Editor (with Henry W. de Jong) of the monograph series, Studies in Industrial Organization, Dordrecht: Kluwer Academic Publishers, since 1978.

Included in Who's Who in Economics: A Biographical Dictionary of Major Economists, 1700-1980, by M. Blaug and P. Sturges, London: Harvester Wheatsheaf/MIT Press, 1983; revised edition, 1986; and 3d ed., Edward Elgar Publishing, 1999.

STATEMENT OF JOSEPH FARRELL

Before the Federal Communications Commission
Roundtable Discussion of ILEC Mergers
Washington, D.C.

February 5, 1999

My name is Joseph Farrell. I am a Professor of Economics at the University of California at Berkeley. I served as Chief Economist of the Federal Communications Commission (FCC) in 1996 and 1997 and have advised the Department of Justice on antitrust policy. I believe that the pending mergers between Ameritech and SBC and between Bell Atlantic and GTE would hamper regulators' use of a key tool that helps make phone regulation more efficient.

In October of last year, on behalf of Sprint Communications Company, L.P., I co-authored a study with telecommunications expert Dr. Bridger Mitchell of how telephone regulators use comparative "benchmarking" across the big near-monopoly telephone companies and how this important tool is blunted by mergers among those companies. We reviewed the role of benchmarking both in traditional telecommunications regulatory activities (such as ratesetting and universal service) and in the active promotion of competition called for in the Telecommunications Act of 1996. As has been widely recognized in the United States and internationally, benchmarking is a powerful and beneficial tool in a wide variety of such contexts. For example, regulators can use experience in other jurisdictions to set service quality standards, or can require all companies to adopt the best practices for connecting to competitors' networks.

Our study showed how benchmarking puts large telephone companies into competition-by-comparison even if they do not compete directly for each other's customers. The proposed mergers would reduce this kind of competition, in much the same way as a merger between firms that compete to sell products to the same customers reduces regular competition.

Comparing regulated firms' performance against each other is a "used and useful" technique for ensuring that consumers and competitors get a fair deal while encouraging the monopolies to operate efficiently. However, when the number of large local telephone companies goes from eight to six to four, those comparisons inevitably get weaker and more tentative. Then regulators either have to give the firms a lot of slack, which would be premature given the slow growth of real local phone competition, or else clamp down in traditional green-eyeshade regulatory ways that are liable to retard innovation and productivity growth.

Our study also considered that private firms can and do compare ILECs against one another. Customers and suppliers of complements (such as long distance companies), as well as nascent competitors, will "benchmark" the ILECs' proposals and performances to produce more efficient outcomes.

Mergers among large ILECs significantly weaken the power and effectiveness of benchmarking. Until 1996 there were seven regional Bell companies plus GTE; mergers between SBC and PacBell and between Bell Atlantic and Nynex have already taken place. The loss of even one of the relative handful of large ILECs would substantially damage efficient regulation, including the interconnection regulation necessary for the growth of competition in local exchange markets.

FCC ROUNDTABLE ON

THE ECONOMICS OF MERGERS BETWEEN LARGE ILECS

February 5, 1999

Press Statement of

Robert W. Crandall

The Brookings Institution

Any analysis of the likely effects of the Bell Atlantic-GTE merger must account for the current environment in the U.S. telecommunications sector. The 1996 Act has unleashed market forces that had been restrained for decades by state regulators. The structure of local access-exchange markets was also influenced heavily by the 1982 AT&T decree that was only recently vacated by the 1996 Act. Given the rapid technological change that has engulfed this sector, the proliferation of new services, and the heritage of decades of regulation, the entire sector is clearly in a situation of considerable disequilibrium. The large number of mergers since the passage of the 1996 Act must be seen as attempts by market participants to position themselves for a new equilibrium characterized by more intense competition.

Benefits of the Merger

Whenever an industry emerges from a long period of regulation, market participants are forced to adjust to new market realities. Incumbent firms, unaccustomed to competitive rivalry, are forced to adjust to new rivals' product offerings and technologies. In the case of incumbent local exchange carriers (ILECs), this requires the adjustment of facilities, personnel, and even market boundaries in order to compete successfully with firms that are unencumbered by the heritage of decades of regulation. This heritage includes the drawing of geographic franchise boundaries, the need to cross-subsidize unprofitable services, and the regulatory requirement to depreciate facilities more slowly than the rapid change in technology would imply. Decisions made to comply with past regulation are not likely to prove universally efficacious in competing in this new environment.

It is not surprising, therefore, that telecommunications firms are struggling to recast themselves to be able to compete in an era of open entry. AT&T has made several rather unsuccessful attempts to recast itself as a full-service telecommunications company, and only recently has bought the country's largest cable company, TCI, one of the largest Competitive Access Providers (CAPs), TCG, and IBM's Internet operations. AT&T has also announced a joint venture with Time Warner for cable telephony. MCI WorldCom is obviously the product of many large mergers. Frontier, once Rochester Telephone, has been active in making acquisitions and new investments to be able to compete in this new environment.

The LEC sector is still heavily regulated, but it is now being buffeted by new entry from firms who are largely unregulated. With franchise areas that are the product of decades of regulation and a more recent antitrust decree, it is not surprising that ILECs are now adjusting these boundaries through merger. Under state regulation, ILECs did not have to compete with full-service telecommunications companies, and the RBOCs were actually prohibited by the AT&T decree from doing so. Now, to survive, these ILECs must offer a wider array of services and have a brand image that allows them to compete with truly national firms, such as AT&T, MCI-WorldCom, and Sprint.

The Bell Atlantic-GTE merger is precisely the type of merger that will improve the ability of ILECs to compete in this increasingly complex marketplace. First, it allows both firms to rationalize their operations and to shed some of the costs that are the heritage of regulation. Second, it combines Bell Atlantic, a LEC with a presence in large, eastern metropolitan areas but a limited product line, with GTE, a LEC with operations dispersed over many states, with facilities in more rural areas, but a strong service offering in the crucial arena of Internet and data services.

The likely savings from the merger's synergies are attested to by the results from previous mergers among non-competing LECs, such as Bell Atlantic-NYNEX and SBC-Pacific Telesis. The record in this case clearly documents the savings from the Bell-Atlantic-NYNEX merger; the record in SBC-Ameritech documents the cost savings realized from SBC-Pacific Telesis. The financial community is clearly convinced that these savings are real. This has not always been the case in other deregulated industries, particularly in the airline industry, but in this industry the opportunities for savings through mergers are real and have repeatedly been documented.

The existing facilities and array of services of the ILECs may not be ideal for them to compete successfully in the new competitive telecom era. AT&T and WorldCom have recognized similar problems and continue to be active acquirers of assets. The ILECs are also attempting to adjust through merger. In the case of the Bell Atlantic-GTE merger, each company can remedy deficiencies in its current facilities through this transaction. GTE, having acquired BBN, can now exploit the value of these assets and develop them into a full-blown competitor of the dominant Internet backbone service suppliers, Sprint, MCI WorldCom, and Cable & Wireless, through the marketing assets and geographical reach of Bell Atlantic. Bell Atlantic, on the other hand, can overcome its disadvantage of not being among the first movers in developing an Internet backbone by combining with GTE.

Finally, Bell Atlantic and GTE see the merger as providing them with the ability to attract enough large "anchor" business customers to make entry into 21 out-of-region MSAs feasible. Combining the GTE areas with the Bell Atlantic region provides a large enough increase in the number of these crucial anchor companies to make such entry an attractive proposition.

In short, the Bell Atlantic-GTE merger is likely to create a far more viable source of entry into local markets outside their territories than either would be independently. The lower costs, better service packages, enhanced brand image, and greater agglomeration of large business customers combine to yield this result.

Will the Merger Lessen Competition?

Neither Bell Atlantic-GTE nor SBC-Ameritech is a horizontal merger. Neither pair of merging firms' local service areas overlap. However, both mergers combine some local operations in geographically adjacent areas, giving rise to putative concerns about potential competition. Most of the remaining concerns expressed about the effect of these mergers involve the possibility of increased coordination among market participants, price squeezes, potential vertical foreclosure, and the loss of information for regulatory benchmarking. None of these concerns is of much importance.

1. Potential competition. In its 1997 Bell Atlantic-NYNEX decision, the Commission expressed concern that the merger of these two ILECs reduced the number of "significant" sources of entry into local services in LATA 132 from four to three because the Commission concluded that large, adjacent ILECs (not SNET) and the three large IXCs were the most "significant" likely new entrants. Given the dispersed nature of GTE's local-exchange operations, it would not qualify as a significant potential entrant into any of Bell Atlantic's current local-service markets.

It is far from clear, however, that the universe of potential entrants can be so precisely delimited. Given recent developments in wireless technology and the sharp decline in wireless rates, for instance, it would seem appropriate to include wireless carriers in this group. Moreover, given AT&T's $32 billion purchase of TCI as its vehicle for local entry and its alliance with Time Warner, surely the nation's largest cable MSOs should be prominent in this list. Finally, the list should include non-adjacent LECs given SBC-Ameritech's and Bell Atlantic-GTE's plans to enter out of region in non-adjacent markets. Given the abundance of large, potential entrants in these categories, it is very difficult to see how either merger meaningfully reduces the number of "significant" participants in the relevant markets. Surely, the Commission has no evidence from its survey of local competition that adjacent ILECs have yet been a more significant source of such entry than are other types of potential entrants.

2. Increased coordination. In Bell Atlantic-NYNEX, the Commission concluded that the reduction of the number of "significant" market participants from five to four in LATA 132 or the New York metropolitan area risked increased coordination of pricing and output decisions among the remaining firms. Such coordination would appear very unlikely, however, given the rapid pace of technical change, the different strategies being employed by the large telecommunications firms, and the diversity of customers and services. Given that recent events now require the Commission to expand the number of significant participants, this concern -- even if it were valid in 1997 -- is simply not important today.

A variant of the increased coordination argument involves only the ILECs. By combining into two or three large companies with a national presence, the Regional Bell Operating Companies are alleged to be moving toward an equilibrium of mutual forbearance of entry. But if their success in establishing a national brand and national services requires such entry, such forbearance would hardly be in each merged company's best interest. Moreover, if others, such as AT&T-TCI, MCI WorldCom, Sprint, the national wireless companies, the large cable MSOs, and a variety of other CLECs such as Teligent, RCN, and Winstar are entering these local markets at an accelerating rate, why would any ILEC forbear at the cost of missed opportunities?

3. Vertical foreclosure. The one issue that has been raised most often in regulatory proceedings involving the RBOCs since 1984 is the possibility that they will exercise subtle forms of discrimination against unintegrated rivals in providing access to their local access/exchange facilities. There is no empirical support for these allegations, only the invocation of a theoretical possibility that they may occur -- with or without mergers. Katz and Salop allege that the two ILEC mergers we are considering today will increase these theoretical possibilities by "internalizing" the anticompetitive benefits that would otherwise accrue to an unrelated ILEC. There are serious theoretical problems with such assertions, as Schmalensee, Taylor, Crémer, and Laffont point out. More fundamentally, no one has shown that these theoretical possibilities actually occur in the real world. There is no evidence of which I am aware that the ILECs have been able to discriminate in favor of their wireless services or information services to frustrate competition in these markets. Nor is there evidence that unintegrated entrants are more likely to enter geographic markets served by a small ILEC than areas served by very large ones with the geographic footprints that so alarm Katz and Salop. For example, a perusal of the Commission's Industry Analysis Division Report, Local Competition, released this past December, shows that CLEC activity is much weaker in Sprint's ILEC territories than in the territories of the larger ILECs, such as SBC, Bell Atlantic, and Ameritech.

4. Price squeezes. The very notion that a price squeeze could be exercised successfully by one of the large ILECs or the combination of two ILECs in one of the mergers under consideration against well-capitalized rivals such as AT&T, Sprint, and MCI WorldCom would seem preposterous. In antitrust lore, price squeezes occurred when an industrial giant, such as ALCOA, sold its basic industrial output to several downstream markets. By charging prices that varied inversely with the price elasticity of demand, such a monopolist could increase its profits and increase economic welfare. Because such discrimination could be thwarted by arbitrage, the monopolist sold into the market with low price-elasticity of demand and produced the other product itself. This practice was objected to by prospective rivals in the latter market as a price squeeze because they could not compete when paying the high price charged for the basic material in the former market.

In telecommunications, long-distance companies make a different argument concerning a price squeeze. They allege that, as long as access charges are above incremental cost, an ILEC will use a lower price of access in pricing its downstream services than it charges its rivals. This will "squeeze" the rivals, presumably damaging competition in the downstream market and driving its downstream rivals out of business. This is not a "price squeeze" per se, but rather an attempt at predatory pricing which is precluded by imputation safeguards in the regulatory process. Professor Arrow has forcefully made this point in the Bell Atlantic-GTE proceeding. No one can seriously believe that such a predatory strategy could be profitable for an ILEC, for it would require the elimination of AT&T, MCI WorldCom, Sprint, and other well-capitalized firms and, subsequently, the ability to raise rates enormously without attracting entry. Otherwise such a "squeeze" would simply be the permanent sacrifice of cash flow that redounds to the benefit of consumers. Not surprisingly, there is no empirical evidence that such a squeeze has been tried, nor, obviously, that such a squeeze has been successful.

5. Benchmarks. The Commission has expressed the concern that successive mergers among large ILECs may reduce the universe of observations for information that is crucial to regulators, such as measures of total factor productivity and collocation practices. Arrow, Schmalensee, and Taylor have analyzed the validity of the underlying theory behind this concern and has found it wanting. I can only add that a decision by the Commission to permit mergers that improve economic efficiency based on a desire to retain statistical observations has obvious risks. The Commission surely does not wish to obtain information based on inefficient operations. If mergers such as Bell Atlantic-NYNEX and SBC-Pacific Telesis have improved company operations or increased the ability of these firms to compete in the large national marketplace, the Commission should welcome such mergers and the information they provide. Given the ubiquity of modern telecommunications operations, surely the Commission could expand its view from the large U.S. ILEC to a variety of other LECs in the U.S. and elsewhere in the world.

Many of the arguments for retaining the independence of many large LECs derives from the notion that the Commission needs to have a number of observations from which to deduce the "best practices" on important issues involving the implementation of the 1996 Act. However, most of these issues will soon be largely resolved as the Section 271 process for allowing RBOC entry into interLATA services moves ahead. For example, the Commission appears to have decided on standards for OSS in this implementation process. To deny efficiency-enhancing mergers that could well add measurably to telecommunications competition simply to preserve data points for an implementation process that is likely to reach a conclusion very soon is surely unwise. Moreover, GTE is simply not a good benchmark for evaluating the best practices to be applied to the regulation of RBOCs with regard to Section 271 because this part of the 1996 Act does not apply to GTE.

Given the substantial prospects that mergers will increase competition among large, national players -- much as they have in wireless services -- the Commission should welcome the new information that these mergers provide. Such data constitute important "benchmarks" for future Commission decisions regarding the development of competition in all telecommunications markets.

FCC ROUNDTABLE ON

THE ECONOMICS OF MERGERS BETWEEN LARGE ILECS

February 5, 1999

Press Statement of

Robert Gertner

University of Chicago Graduate School of Business

and

Lexecon Inc.

The telecommunications marketplace is changing rapidly. Deregulation and new technology are transforming the industry. Not surprisingly, other industries facing such fundamental shifts have seen major changes in the identity, scope and scale of competitors. These changes are characteristic of deregulated industries such as airlines, trucking, and energy as well as technologically dynamic industries such as computer software and hardware and telecommunications equipment. Many of these changes include significant consolidation through mergers and acquisition. Competitive adaptation to such a changing environment is fundamental for achieving economic efficiency. This is especially true in industries such as local telecommunications where the geographical and product scope of the companies has been determined by regulation rather than market forces. Certainly, proposed mergers must be analyzed carefully by regulatory authorities for potential anticompetitive effects, but regulators should be mindful of the value of competitive responses to a changing environment.

These mergers are between large companies. Although this may make some people worry, it is widely accepted that "big is bad" is a flawed way to think about mergers. Instead, we must evaluate carefully the likely impact of the mergers on competition and consumers.

Opponents to the mergers present a variety of objections to both proposed transactions, but their economic arguments lack empirical support. A careful analysis of the institutional and competitive environments in which these firms compete shows that opponents' concerns are not economically significant.

On the other hand, the procompetitive strategic rationales for the mergers are strong. I am more familiar with the details of the Bell Atlantic-GTE merger, so I will focus on its procompetitive benefits. The most significant benefit follows from two simple premises that are widely accepted by all parties, including regulators and companies opposing these mergers.

The first premise is that the ability to provide facilities-based bundled services on a wide geographic scale is an important strategic asset for telecommunications providers. Indeed, the major opponents to these transactions are pursuing similar strategies in similar ways – by acquiring firms that will allow them to offer portfolios of telecommunications services on a national or near-national basis. For example, AT&T has recently completed several major acquisitions and announced a new business strategy based on offering bundled telecommunications services. The Federal Communications Commission ("the Commission") in these proceedings has acknowledged the importance of bundled services, and the pleadings include statements from many business customers that they value such services.

The second premise is that existing customer relationships provide an important competitive advantage in the evolving market. Wide-ranging evidence supports this view. The evidence includes: the costs incurred by interexchange carriers ("IXCs") and wireless carriers to induce customers to switch service; the difficulty GTE has had in selling services out of its local exchange region; consumer surveys; and the strategies adopted by numerous companies to sell new services to their existing customers or to make acquisitions to gain access to an expanded customer base. The Commission also agrees with this premise. For example, in the Bell Atlantic-NYNEX order the Commission argued that the major IXCs are among the most important potential competitors in local markets because of their existing customer bases and brand recognition.

The merger of Bell Atlantic and GTE will have significant procompetitive benefits. GTE's national facilities-based internet and data network and Bell Atlantic's customer base are strongly complementary assets. The combination of these two assets will create a strong facilities-based bundled services competitor. Furthermore, the merged firm will use GTE's existing presence in or near many geographically dispersed markets to facilitate timely and efficient entry. The benefits to consumers will include the presence of another national or near-national provider of bundled telecommunications services. This increased competition should result in lower prices and greater consumer choice. Businesses will be able to receive the same set of advanced services at all locations. They will be able to coordinate upgrades and service throughout their organizations with a single provider that understands their telecommunications needs. Consumers will be able to reduce transaction costs and coordination costs by having a single provider.

In addition to these benefits, the merger will result in significant cost savings. Bell Atlantic and GTE estimate that the merger will lead to $ 2 billion in annual cost savings within three years of the merger. Regulators are often skeptical of cost savings estimates from mergers. In these mergers, there is an important reason to be much less skeptical – both Bell Atlantic and SBC have completed major mergers (with NYNEX and PacTel, respectively) and each has documented that the anticipated cost savings have been achieved.

These procompetitive benefits could not be achieved without a merger. An effective combination of GTE's network assets and geographical presence with Bell Atlantic's customer base and reputation requires a great deal of investment and complex coordination. Among the decisions that must be made are where to build points of presence on the network, what sets of services to offer, and what prices to charge. It would be difficult to delegate these decisions to one party and maintain incentives to share information effectively, coordinate strategies, and make efficient decisions. Thus, Bell Atlantic as a reseller of GTE services could not achieve the necessary level of coordination and integration. Although a joint venture might be able to achieve some (but only some) of these benefits, the parties would have to make these key decisions jointly, so the effect on competition would likely be the same as a merger. In addition, most of the anticipated cost savings from the merger result from combining operations that could not be accomplished without a merger.

I will contrast these benefits with the potential anticompetitive harms that opponents of the merger have identified. They fall into three categories: loss of significant potential competitors in local markets; loss of regulatory efficacy, and vertical foreclosure.

The loss of a potential competitor is significant only if there are no other similarly (or better) positioned potential competitors. Three characteristics have been suggested that may give one merging party an advantage in its partner's territory: proximity, brand name, and experience as an incumbent local exchange carrier ("ILEC"). For the most part, Bell Atlantic and GTE's local service areas are in different parts of the country. In the few areas where the two firms are contiguous (primarily in parts of Pennsylvania and Virginia), there are numerous other similarly situated local service providers. AT&T claims that companies can serve customers within a 125-mile radius of their existing switches. But 100 percent of the population in GTE's service area that is within 125 miles of a Bell Atlantic switch also is within 125 miles of at least ten other firms' switches. Furthermore, ILECs have no greater expertise than competitive local exchange carriers ("CLECs"); and brand name recognition provides limited value if not coupled with experience of the company's products. The potential competition issues do not come close to those in LATA 132, the only place where the Commission decided that the Bell Atlantic-NYNEX merger created potential competition problems.

Opponents also argue that the mergers will reduce regulatory efficacy through the loss of valuable benchmarks. However, none of the opponents empirically estimates the costs to consumers from lost regulatory efficacy. A close look at how benchmarks are being used currently indicates that the proposed mergers will not substantially hinder regulators. In particular, the 1996 Act shifts the regulatory focus to comparisons of how an ILEC treats itself versus competitors. Such comparisons are unaffected by the proposed mergers – in effect, each company serves as its own benchmark.

In the Bell Atlantic-NYNEX order, the Commission identified two areas where it thought regulatory efficacy could be reduced from major ILEC mergers. These two areas were X-Factor determination for price caps and collocation. The concern with X-Factor calculations is that increased concentration reduces the incentive to invest in productivity improvements because a greater fraction of the improvements will be given back when the X-Factor is recalculated – this is known as the "ratchet effect". However, this claim ignores regulators' ability to respond to changes in the competitive environment. Furthermore, opponents ignore mergers' effects on incentives to increase productivity.

There is a simple way to eliminate the ratchet effect from increased concentration – only include other firms' productivity in determining a firm's X-Factor. Even if this is not done, the overall incentives to invest in productivity likely are increased by the mergers. If productivity improvements involve incurring a fixed cost to reduce marginal costs, then the increased scale from a merger increases productivity incentives, which can swamp the ratchet effect. If, on the other hand, productivity improvements involve incurring a per unit charge today to reduce per unit costs over many periods, the incentives to innovate may still increase from the merger. This is because the initial capital investment costs are included in the total factor productivity analysis that determines the X-Factor. For example, the cost savings resulting from the Bell

Atlantic–NYNEX merger will presumably be incorporated in subsequent X-Factor calculations, resulting in lower price caps.

Collocation issues can be monitored effectively by regulators and by CLECs seeking collocation. Because these agreements are reached at the state level, and because they are observed by other state and federal regulators, it is not clear that a change in holding-company ownership would have any effect on the number of benchmarks. In addition, it is important to keep in mind that Bell Atlantic must get section 271 approval to obtain many of the benefits from the merger. Thus, it has a very strong incentive to comply with all elements of the Commission checklist, including collocation.

Opponents also rely on theories of "raising rivals' costs" or vertical foreclosure. Katz and Salop try to revive an anticompetitive argument that has been rejected by the Commission. They do so with theoretical arguments, but no empirical support. Indeed, the economic evidence is inconsistent with these arguments. Katz and Salop argue that the proposed mergers will increase incentives to discriminate against rivals because the merged firm would capture a larger portion of the purported benefits associated with discrimination. If ILECs are able to discriminate, then Katz and Salop's theory implies that today's larger ILECs discriminate against rivals more than today's smaller ILECs. This does not seem to be the case. Furthermore, in the wireless industry – where the Katz and Salop theory should produce the largest possible effect because the ILEC captures all the benefits of discrimination against non-ILEC rivals – there is no evidence of such discrimination. Indeed, the willingness of ILECs to sell their wireless properties is inconsistent with the Katz and Salop claim.

Finally, access discrimination is illegal. Regulators and rivals monitor ILECs to prevent discrimination. The penalties for discrimination are potentially severe. For example, in addition to normal regulatory sanctions, firms seeking section 271 approval risk losing that approval if they discriminate.

The procompetitive benefits of these mergers are clear. It would be unwise to forgo these benefits because of potential harms that are unlikely, and for which there is no empirical support.

STATEMENT OF PROFESSOR MICHAEL L. KATZ

FCC ROUNDTABLE ON
THE ECONOMICS OF MERGERS BETWEEN LARGE ILECs

5 February 1999

I. INTRODUCTION

My name is Michael L. Katz. I am the Edward J. and Mollie Arnold Professor of Business Administration at the University of California at Berkeley. I hold a joint appointment in the Haas School of Business Administration and the Department of Economics. I serve as the Director of the Center for Telecommunications and Digital Convergence at the University of California at Berkeley. I specialize in the economics of industrial organization, which includes the study of antitrust and regulatory policies. I regularly teach courses on microeconomics, business strategy, and telecommunications policy. In addition to my academic experience, I have served as a consultant to both the U.S. Department of Justice and the Federal Communications Commission (the Commission) on issues of public policy in telecommunications markets. In 1994 and 1995, I served as Chief Economist of the Commission. In this statement, I examine how, if allowed, the proposed mergers between large ILECs would increase both the abilities and incentives of these carriers to weaken competition.

II. THE PROPOSED ILEC MERGERS POSE SIGNIFICANT THREATS TO TELECOMMUNICATIONS COMPETITION

This section briefly outlines the factual and logical analyses underlying the conclusion that the proposed mergers pose significant threats to telecommunications competition and thus to the public interest. Harm to *competitors* is not the source of harm to the public interest. Rather, by raising rivals' costs and degrading their ability to offer high-quality and innovative services, the mergers will weaken *competition,* and telecommunications consumers will be harmed.

- **Incumbent LECs possess significant market power in the provision of access services to their actual and potential rivals.** Local and long distance competitors depend on ILEC access services, including unbundled network elements, interconnection (both at the network and OSS levels), and various forms of originating and terminating access services. Competitors will need an array of new and innovative forms of access in the future. ILEC market power may be exercised by setting high access prices (in the absence of price regulation) or by pursuing exclusionary access policies that deny, delay, or degrade the access provided to competing carriers.

- **Regulation is an imperfect check on the exercise of ILEC market power.** At best, regulation is a slow and imperfect process. These limitations reflect the difficult nature of the regulator's problem. The roll out of xDSL offers several examples of how it is hard to distinguish ILEC misdeeds from difficulties inherent in implementing new technologies. In part by weakening benchmarks, the proposed merger would make it even more difficult for state and federal policy makers to prevent ILECs from refusing to provide efficient, high-quality and innovative access at reasonable prices.

- **Exercise of ILEC market power in the provision of access will significantly weaken competition.** Local and long distance carriers will continue to depend on ILEC access services to compete. ILEC conduct that impairs rivals' quality, raises their costs, or slows their entry or expansion harms the public interest. Consumer welfare is reduced even if ILEC practices do not completely drive the rivals from the market.

- **There are significant competitive spillovers across ILEC regions.** This conclusion follows from two key facts. First, national rivals are the strongest competitive threats to the ILECs. Second, there are significant benefits to national scope, so that weakening a rival's ability to compete in one region will weaken its ability to compete in other regions as well. These effects arise due to the presence of:

  — Network effects at the subscriber level.

  — Network effects at the third-party supplier level.

  — Word-of-mouth networks.

  — Economies of scale and scope.

- **The proposed ILEC mergers would increase the merging parties' incentives and abilities to exercise their market power.** By permitting effective coordination between what are today separate and independent local exchange operations, the proposed ILEC mergers would increase the merging parties' incentives and abilities to disadvantage local and long distance rivals by reducing ILECs' provision of the high-quality, efficient, and innovative forms of access that competitors will require.

The proposed mergers thus pose significant threats to telecommunications competition and the public interest.

III. MERGER PROPONENTS HAVE RAISED INVALID OBJECTIONS TO THIS ANALYSIS

The parties have put forth several claims that do not stand up to logical or factual scrutiny. Here, I only have time to hit on some of the highlights:

- The ILECs claim that if consumers and rivals can observe poor performance, then so can regulators. But the question is not whether ILEC performance is observable; the question is whether regulators can distinguish strategic behavior from technical limitations from plain old incompetence. For example, CLEC-ILEC OSS interfaces perform worse than ILEC internal OSS interfaces. Is this inherent in current technology and systems, or is it due to ILEC strategic behavior? The fact is that ILECs have scope to engage in anticompetitive behavior.

- The ILECs claim that, once the costs of entry have been sunk, a rival's competitive behavior cannot be affected. The fact is that an ILEC has incentives to engage in anticompetitive behavior against a current rival to: (a) deter additional investment by that rival, or (b) deter future entry by additional carriers. Indeed, sunk costs make entry riskier and can increase the power of ILEC exclusionary behavior.

- The ILECs claim that competitive spillovers across ILEC regions are negative because deterring entry in one region increases the threat of entry in other regions. The fact is that the most significant players are planning national coverage. Carriers are doing this in order to develop network effects, offer geographic one-stop shopping, use national media, and enjoy economies of scale in systems development. Weakening these rivals in one region weakens them overall and reduces the threat of entry and competition faced by ILECs in other regions.

- The ILECs claim that regulation works so well that there is no scope to engage in exclusionary behavior. The fact is that numerous instances at the state and federal levels demonstrate that ILECs can and do attempt to slow competition. These instances may be only the tip of the iceberg. Presumably the fact that ILECs try indicates that they believe they have a chance of getting away with it. The ILECs also make a variant of this argument when they claim that the interLATA carrot deters bad behavior. But one only has to look at the state of §271 applications to see that this argument doesn't hold water: the RBOCs have not been given sufficient incentives to induce compliance with the checklist to date. This is not entirely surprising: the data show that local margins are large relative to long distance margins for business lines. Thus, the prospect of interLATA authority cannot be expected to eliminate RBOC exclusionary behavior.

FCC Roundtable on the Economics of Mergers Between Large ILECs
Outline of Remarks by Robert E. Litan[1]
Session 3: Loss of Actual and/or Potential Competition

1. The legal standard: the FCC's "public interest" test

    a. DOJ test – "reasonable probability" that the mergers would "substantially lessen competition"; or
    b. Something different? It makes a difference which, if any, of these standards should apply

        --reasonable likelihood that the mergers would just lessen competition (something less than a "substantiality" test)
        --the mergers *may be pro*competitive (a bit stronger test)
        --the mergers are *likely to be pro*competitive (a much stronger test)

    c. If any of the above standards would rule out the mergers, can they be saved by appropriate conditions?

2. Any problems relating to *actual competition* are likely to be minimal and easy to fix under any of the standards

    --probably the only area of overlap is wireless, and if there are insufficient numbers of other competitors in some geographic areas, the problems should be fixed with divestitures, as was true with Worldcom/MCI

3. The loss of *potential competition* is the more important issue in these cases. Three key questions:

    a. The extent of competition in the market (for telephone service, and in many areas for cable TV, there is a monopoly or something very close to it, which makes the presence or absence of potential competition important)
    b. The number of significant potential entrants post-merger
    c. Would any of the parties have been the *most likely, successful* entrants? (The result here rests heavily on corporate internal documents which I have not seen)
    d. Note: DOJ has not won on this theory, but it hasn't been tested under monopoly conditions. In addition, the FCC has already recognized (in Bell Atlantic/Nynex, if not other circumstances) that potential competition is relevant to whether or not the merger is in the public interest.

4. The markets (see next chart)

    a. POTS
    b. TV

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